Illinois Environmental Protection Agency
Bureau of Air, Permit Section
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Project Summary for a Construction Permit Application from U.S. Silica – Ottawa Facility Ottawa, Illinois

Site Identification No.: 099825AAA
Application No.: 15050012

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Important Dates
- Application Received: May 10, 2015
- Comment Period Begins: June 27, 2015
- Public Hearing: August 11, 2015
- Comment Period Closes: September 10, 2015

I. Introduction

U.S. Silica has applied for an air pollution control construction permit for changes to the sand processing equipment at its facility in Ottawa. The project would increase the production capacity of the facility. This project would not be a major project for purposes of the federal rules for Prevention of Significant Deterioration (PSD), 40 CFR 52.21.

The Illinois Environmental Protection Agency (Illinois EPA) has reviewed U.S. Silica's application for this project and made a preliminary determination that the application meets applicable requirements. Before taking final action on the application, the Illinois EPA is holding a public comment period to receive comments on the issuance of a permit for the project. The Illinois EPA has prepared a draft version of the construction permit that it would propose to issue for this project. The Illinois EPA is making this draft permit available for public review and comment.

II. Background

At its Ottawa facility, U.S. Silica produces silica sand from sandstone that it mines on-site. The sand is sold and transported from the facility for a variety of uses, including use in concrete and in the manufacture of glass.

In the mining areas or quarries at the facility, sandstone is separated from the bedrock by blasting. The resulting material is friable and can be readily mixed with or "slurried" with water for initial processing to remove material other than sandstone. The native moisture in the mined sandstone material acts to prevent dust before the material is slurried. After initial processing, the slurried sand is transported by pipeline to the Sand Plant for processing. At the sand plant, the sand is filtered, sized and mechanically dewatered before entering one of four natural gas-fired sand dryers. The dryers are fluidized bed dryers, using airflow to suspend the sand as it dries. High-efficiency scrubbers are used for control of particulate emissions from the dryers. The dried sand is conveyed to various other plants at the facility, e.g., the Fine Sand Plant or the Sizing Building. In these plants, the dried sand is classified or separated by the size of the sand grains by various screening and "sizing" operations to make sand products that are suitable for different uses. The sand products are then loaded out for sale from the facility. Filters or "baghouses" are used to control particulate emissions from most of the processing equipment.

The facility is permitted as a major source under Illinois' Clean Air Act Permit Program (CAAPP). The CAAPP is Illinois's air pollution control operating permit program for major sources and certain non-major sources pursuant to Title V of the Clean Air Act. The facility is subject to the CAAPP program because it is a major source for purposes of the CAAPP, with potential emissions of particulate that are more than 100 tons/year. The CAAPP permit for the facility addresses the various air pollution control requirements that currently apply to the facility. These emission control requirements are accompanied by requirements for Periodic Monitoring, that is, actions that U.S. Silica must carry out to assure compliance with the control requirements, including requirements for emission testing, inspections, operational monitoring and

recordkeeping. In addition, U.S. Silica must submit periodic reports addressing the facility's compliance status, including an annual compliance certification. The CAAPP permit for the facility, Permit 95060046, was renewed by the Illinois EPA in January 2015.

III. Project Description

The proposed project would entail various changes to increase the production capacity of the facility.[1] The key elements of the project would be changes to increase the capacity of the Sand Processing Plant to dry sand. For one dryer, Sand Dryer 3, the heat input capacity of the dryer's natural gas burners would be increased from 34 to 40 million Btu/hour, total, and other physical changes would be made to this dryer. A new high-efficiency scrubber would also be installed on this dryer for control of particulate emissions. For the other three sand dryers, equipment would be installed to increase the amount of water removed by the belt vacuum filters that are located before the dryers. This new equipment would apply a wetting agent to the wet sand to reduce the surface tension of the water on the surface of the sand and increase the amount of water that is mechanically removed before these dryers by the belt filters. Particulate emissions of these three dryers would continue to be controlled by the existing high-efficiency scrubbers.

The project would also involve installation of some additional equipment to process dried sand, including a new mineral separator for sizing of dried sand and associated conveyors. The particulate emissions of this new equipment will be controlled by an existing baghouse.

One of the existing baghouses, which will now control another new screen for dried sand, will also be replaced. The new baghouse will be "larger" than the baghouse that is being replaced, with the capacity to handle more air flow from process equipment. This new baghouse will also have high-efficiency cartridge filters.

IV. Applicable Emission Standards

All emission sources in Illinois must comply with applicable federal and state emission standards adopted, respectively, by the USEPA and the Illinois Pollution Control Board. These emission standards represent the basic requirements for sources in Illinois. The emission standards that apply to the existing facility are addressed in the CAAPP permit for the facility. In its application for this project, U.S. Silica addressed the emission standards that would apply to the new equipment and the additional emission standards that would apply to certain existing equipment due to this project. Most significantly, because Sand Dryer 3 would be modified, it would become subject to an additional emission standard for PM pursuant to the federal New Source

[1] Another application from U.S. Silica for an air pollution control construction permit, Application 15040042 is also pending with the Illinois EPA, Air Permit Section. This application addresses the installation of a crusher system at the mining operation. This system would be an alternative to using water cannons to make the sand slurry from the mined material. U.S. Silica has explained that its goal for this other project is to more efficiently provide a consistent supply of sand to the Sand Processing Plant. The application for this system indicates that the potential emissions of particulate would be less than 2.0 tons/year.

Performance Standards (NSPS) for Calciners and Dryers in Mineral Industries, 40 CFR 60 Subpart UUU. The application indicates that Sand Dryer 3 would comply with this new standard, 0.025 grains of PM per standard cubic foot of exhaust (gr/scf). In fact, in this application, U.S. Silica has proposed to comply with a more stringent PM emission limit for Sand Dryer 3, 0.015 gr/scf. This is the limit that the other three sand dryers at the facility, Sand Dryers 1, 2 and 4, are already subject to and with which they are complying.[2] In addition, because existing Baghouse B would now control a new crusher, this baghouse would become subject to a more stringent emission standard, 0.014 gr/scf, pursuant to the NSPS for Non-Metallic Mineral Processing Plants, 40 CFR 60 Subpart OOO. This is because Baghouse B would now control a subject emission unit constructed on or after April 22, 2008.

III. Applicability of Prevention of Significant Deterioration (PSD)

While the proposed project would result in potential increases in emissions of particulate matter (PM), particulate matter$_{10}$ (PM_{10}) and other pollutants from the facility as a result of the increase in production capacity, the project would not be a major project for purposes of the federal rules for Prevention of Significant Deterioration (PSD), 40 CFR 52.21.[3] Applicability of PSD must be considered for the proposed project because LaSalle County is designated attainment or unclassified for the National Ambient Air Quality Standards (NAAQS) for all criteria pollutants, including the NAAQS for PM_{10} and $PM_{2.5}$. The potential emissions of various pollutants from the facility, as would be limited by construction permit, would continue to be well less than the relevant threshold for a major source under the PSD rules.[4, 5] This threshold is potential emissions, other than fugitive emissions, of a regulated pollutant other than greenhouse gases, considering enforceable limits on the facility's operation and emissions of the pollutant, that are 250 tons/year or more.[6] Accordingly, since the facility will continue to not be a major source, this

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[2] The PM emission rate of Sand Dryer 4 measured during testing conducted in 2012 was 0.012 gr/scf, 20 percent lower than the applicable emission limit for this unit accepted by U.S. Silica and memorialized in current permits for the facility. For existing sand processing equipment at the facility controlled by baghouses, the margins of compliance with applicable limits for PM emissions shown by testing has been even greater. Refer to pages 11 and 12 of the S*tatement of Basi*s, dated December 30, 2015, prepared by the Illinois EPA for the public comment period for the planned renewal of the CAAPP permit for U.S. Silica.

[3] If the project was a major project and PSD was applicable, additional requirements would apply to the project. For example, new and modified equipment emissions would have to use Best Available Control Technology, as determined on a project-specific basis, for pollutants for which emissions would increase by significant amounts.

[4] In its Annual Emission Report for calendar year 2014, U.S. Silica reported actual annual emissions of 189.1 tons of PM, 115.2 tons of PM_{10}, 64.3 tons of nitrogen oxides, 31.8 tons of carbon monoxide and 2.0 tons of volatile organic material.

[5] Even if the existing facility were a major source for purposes of PSD, this project would not necessarily be a major project. PSD would only be applicable to the proposed project if the project would result in a significant net increase in emissions of pollutant(s) comparing the facility's baseline actual emissions and the facility's future emissions with this project.

[6] For purposes of PSD applicability, "fugitive emissions" are "emissions which could not reasonably pass through a stack, chimney, vent, or other functionally equivalent opening." Emissions from roadways are an example of fugitive emissions since roadways cannot be enclosed so that associated dust emissions from vehicle traffic would be released to the atmosphere through a stack or vent.

Emissions of greenhouse gases would only need to be considered for purposes of PSD applicability if the proposed project were a major PSD project for emissions of a pollutant other than greenhouse gases.

project is not a major project. For an existing facility that is not a major source under the PSD rules, as addressed by 40 CFR 52.21(b)(1)(i)(*c*), a proposed project would only be a major project subject to PSD permitting if the physical changes would constitute a new major stationary source by themselves. For this proposed project, this would clearly not be the case.

V. Draft Construction Permit

The construction permit for the project would set out the additional requirements that would apply to U.S. Silica with this project. The permit would contain conditions addressing the emission standards that apply to new process equipment and the additional emission standards and regulatory requirements that apply to modified process equipment. The permit would also contain limits and requirements to assure that the facility would continue to be a minor source for purposes of PSD. For this purpose, limits are set on the amount of sand processed by the facility with limits on the design capacity of the four sand dryers at the facility. Attachment 1 of the Draft Permit sets out limits on the amount of particulate emitted by the various groups of process equipment at the facility. Emission testing of selected equipment would be required to confirm that the control devices on this equipment have been properly designed and installed so as to enable compliance with applicable limits. Operational monitoring of control devices and appropriate recordkeeping would be required to verify compliance on an ongoing basis. These provisions would ensure that U.S. Silica operates within the limits set by the permit and is properly controlling emissions from process equipment.

The construction permit for the proposed project would also set out additional requirements for control of fugitive dust from roadways and other sources of fugitive emissions at the facility. For this purpose, the draft permit would set out certain mandatory requirements, such as requirements related to the location of open storage piles. Like the CAAPP permit for the facility, the permit would also require that U.S. Silica control emissions of fugitive dust in accordance with a Fugitive Dust Operating Program that it develops and maintains, subject to review by the Illinois EPA. These provisions would ensure that U.S. Silica appropriately controls sources of emissions of fugitive dust at the facility.

VI. Request for Comments

It is the Illinois EPA's preliminary determination that the permit application for the proposed project meets applicable state and federal air pollution control requirements, subject to the conditions proposed in the draft permit. The Illinois EPA is therefore proposing to issue a permit for this project.

Comments are requested on this proposed action by the Illinois EPA and the proposed terms and conditions in the draft construction permit.